ORD Provides Technical Support to EPA/OIA & DOS Initiative in Egypt

A workshop on global climate change was held in Cairo, Egypt, on May 10-12, 1999. The Office of Research and Development's Global Change Research Program made important contributions to the workshop, at the invitation of EPA's Office of International Affairs (OIA). The workshop was sponsored by the U.S.-Egypt Joint Board on Scientific and Technological Cooperation, in cooperation with the U.S.-Egypt Partnership for Economic Growth and Development's Subcommittee on Technology.

The workshop was first proposed by the Department of State's (DOS) Bureau of Oceans and International Environmental and Scientific Affairs (OES) at the June 1998 meeting of the U.S.-Egypt Joint Science and Technology Board. (OES has made climate change a strategic priority for 1999.) The Egyptian Environmental Affairs Agency (EEAA), Egypt's National Authority for Remote Sensing and Space Sciences (NARSS), and the U.S. Environmental Protection Agency's Office of International Affairs jointly organized and led the workshop. EEAA is Egypt's lead technical agency for international climate change negotiations. NARSS scientists have been actively engaged in climate research activities and are interested in undertaking collaborative research with colleagues in the United States (including scientists at EPA and DOE) under the U.S.-Egypt Joint Science and Technology Fund.

The workshop represented a successful partnership between EPA's Office of International Affairs, Office of Research and Development (ORD), Office of Air and Radiation (OAR), and Office of Policy (OP). The Office of International Affairs invited ORD's Global Change Research Program, OAR, and OP to help design and participate in the workshop. Dr. Joel Scheraga, the National Program Manager for the Global Change Research Program, led ORD's efforts to provide technical support to OIA. In addition to providing help with the design of the workshop, Dr. Scheraga gave a plenary presentation on "The Potential Consequences of Climate Change for Egypt" and led many of the subsequent discussions on the science and impacts of climate change.

Workshop Goals

The workshop brought together key policy makers and scientists to discuss the potential consequences of climate change in Egypt, to share research findings, to discuss the status of international climate change negotiations; to present ongoing projects such as the Egypt Country Study, the National Action Plan, and the National Energy Efficiency Strategy, and to explore potential future U.S.-Egypt collaboration on climate change issues. Information on existing scientific studies and monitoring methods, ongoing projects in Egypt, and materials from Egyptian non-governmental organizations were also on display in a special demonstration and exhibits area.

Workshop sessions were held on the following specific topics:

- The potential impacts of climate change on Egypt
- Water resources, agricultural vulnerability, and human health impacts

- Sea level rise and coastal zone research
- Climate change modeling and monitoring
- Existing climate change-related activities in Egypt
- Opportunities for future U.S.-Egypt collaboration
- Status of international climate change negotiations

Participants

Participants included key policy makers from the Egyptian government, as well as scientists, private sector and non-governmental organization representatives, and journalists. There was extensive coverage of the event on Egyptian television and in the press.

The speakers in the opening session on May 10 included U.S. Ambassador Daniel Kurtzer, Minister of Higher Education and State for Scientific Research Moufid Shehab, Minister of Environment Nadia Makram Ebeid, EEAA Chairman Ibrahim Abdel Gelil, and NARSS President Adel Yehia.

Key Egyptian speakers during the course of the workshop were Abdel Ghafar El-Deeb of the Ministry of Foreign Affairs, Osama El-Kholy of the EEAA, Mohamed El-Kassas of Cairo University, and representatives of other government institutes and universities.

In addition to Ambassador Kurtzer, the speakers from the United States included:

- Ambassador Mark Hambley, the State Department's Special Representative to the U.N. Committee for Sustainable Development, who headed the U.S. delegation of speakers;
- Ms. Jane Metcalfe, Project Manager and Conference Organizer, of EPA/OIA's Office of International Affairs;
- Dr. Joel Scheraga, National Program Manager of the EPA/ORD's Global Change Research Program;
- Ms. Avis Robinson, Deputy Director of EPA/OP's Office of Environment and Economy;
- Ms. Katherine Buckley, Project Manager in EPA/OAR's Office of Atmospheric Programs; and
- Ms. Sandra Guill of the U.S. Country Studies Program.

Dr. Bill Dannevik (Division Leader, Atmospheric Sciences Division, in DOE's Lawrence Livermore Laboratory) and Ms. Ko Barrett (Global Bureau, USAID) also attended the workshop.

Opening Session

Minister of Environment Nadia Makram Ebeid emphasized that climate change is not a North-South issue, but rather a global challenge. She noted however, that technology transfer remains a key issue for Egypt and other developing countries. Capacity building is also a

necessity if Egypt is to introduce environmentally sound practices and participate in international negotiations as an active bilateral partner.

Abdel Ghafar El-Deeb of the Ministry of Foreign Affairs reminded participants that developing countries must heed their commitments to public opinion and economic development at home, as well as commitments under international climate change agreements. He also said that developed countries should show at least minimal reductions in their own greenhouse gas emissions. He stated that developing countries as a whole were disappointed that follow-through consultations and meetings growing out of the Kyoto agreement have not led to financial assistance or a concrete mechanism for technology transfer.

Ambassador Hambley agreed that technology transfer and capacity building are key issues in the climate change convention and that developed countries could do more to meet developing countries' needs. On the other hand, he reminded participants that the U.S. has supported the Countries Study Program in 55 countries including Egypt, and that agencies like USAID, EPA, and DOE all have bilateral programs with developing countries that encompass climate change activities. What is needed is a new era of private sector partnership between developed and developing countries through a process like the Clean Development Mechanism (CDM). While the complexity of these types of flexibility mechanisms has slowed progress in ongoing negotiations, ultimately they are the reason that developed countries have accepted emissions reduction targets.

Discussions of Climate Science and the Potential Consequences of Climate Change for Egypt

Several Egyptian speakers pointed out that the impacts of climate change on Egypt could be dire given the country's dependence on the Nile as its major water source and on the Nile Delta for traditional patterns of agriculture and human settlement. This message was reinforced later by Dr. Joel Scheraga, who emphasized that water is the lynchpin that ties many of the Egyptian sectors together.

While many studies exist that examine these potential impacts, the science underlying them often leads to widely divergent conclusions. One Cairo University speaker caused participants to listen closely by quoting from a 1990 report by the Intergovernmental Panel on Climate Change (IPCC), in which global climate models predict that climate change could cause Nile water levels either to increase by 30 percent or decrease by 77 percent. He stated that this type of uncertainty is difficult for policy makers to react to, and that scientists need to develop more accurate regional models to better understand specific impacts on Egypt. Dr. Scheraga subsequently presented the results of an EPA-sponsored case study that concluded that total economic welfare in Egypt would decline as a result of climate change, whether or not Nile River flows increase or decrease as the climate changes. He suggested that such assessment studies can provide useful insights to policy makers, despite the existence of scientific uncertainties.

Dr. Joel Scheraga gave a plenary presentation on "The Potential Consequences of

Climate Change for Egypt." He summarized historic and projected changes in greenhouse gas concentrations, ongoing changes in the world's climate (including trends in both temperature and precipitation), predicted future changes in global climate, and potential impacts on Egypt. He responded to many of the research concerns raised by Egyptian speakers and reminded scientists to consider the social and economic impacts of climate change. He emphasized that valuable insights can be derived from existing scientific information despite the existence of uncertainties. For example, an EPA-sponsored study suggests that 4 percent of Egypt's agricultural land could be flooded by 2060, and 12 to 15 percent by 2100, displacing 6 million people, including 3 million from Alexandria. Whether this matters and whether should be taken now to address these risks is up to policy makers. But scientists have a responsibility to contribute to these policy determinations. It was at this point that he presented the results of the EPA-sponsored case study that concluded that total economic welfare in Egypt would decline as a result of climate change, whether or not Nile River flows increase or decrease as the climate changes.

Scheraga also reminded participants to consider the potential benefits as well as negative impacts of climate change, and to remember that climate change is only one of many stresses on the environment.

Following these presentations, the workshop participants identified four categories of climate impacts that are particularly relevant to Egypt: water, agriculture, coastal zones (due to sea level rise), and human health. In addition, there was agreement that a need exists for the development of better regional climate models that can be used in the assessment of impacts for Egypt and the surrounding region.

Participants also agreed that it is imperative that researchers in the various disciplines (*e.g.,* climate modeling, impacts assessment) work closely together to ensure that their activities are well integrated. (For example, scientists must ensure that the output from the regional climate models are useful for impacts assessment.) Therefore, there is a clear need for a close partnership between the NARSS and the EEAA.

Outcomes from the Workshop

At the end of the workshop, representatives from the EEAA, NARSS, and EPA reported out in discussions in both the policy and research sessions and outlined next steps to further U.S.-Egypt cooperation on climate change issues. Key next steps related to climate science and the potential impacts of climate change on Egypt -- in which EPA's Global Change Research Program will be actively involved in partnership with OIA, OAR, and OP -- include:

(A) Under its new work agreement with USAID, the EPA will address problems that Egypt has identified as high priority, such as public health and clean air, that also have climate change co-benefits.

(B) Participants identified research needs that could be addressed through the U.S.-Egypt Joint

Science and Technology Fund, which supports an annual grants program for collaborative research projects carried out by pairs of U.S. (*e.g.,* EPA) and Egyptian scientists. Areas for potential collaboration include:

-- Identifying current conditions and stresses on natural resources in Egypt independent of climate change, in order to produce a baseline against which future impacts can be measured.

-- Conducting research on how climate change impacts can exacerbate or ameliorate conditions in agriculture, water, coastal zones, and human health. The EPA may include Egypt case studies in a series of impacts workshops planned for the upcoming year. The EPA will also put NARSS scientists in touch with U.S. experts on developing regional climate models.

-- Developing useful scientific information from which policy makers can design mitigation and adaptation strategies. Specific research projects could examine fuel cells for the transportation sector, energy-efficient building codes, and other energy-related topics.

Conclusion

The climate change workshop proved to be one of the most dynamic Joint Fund events held this year, due to the efforts of the EPA, EEAA, and NARSS to pull together policy makers, researchers, existing studies and other scientific resources, often for the first time. The USAID-EPA work agreement, the Department of State's Joint Fund Grants Program, and the U.S. Country Studies Program housed at DOE all offer real opportunities to begin implementation of next steps identified in the workshop.

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